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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Petri Jolma

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EXAMINER

RAMPURIA, SHARAD K

ART UNIT

PAPER NUMBER

2617

MAIL DATE

DELIVERY MODE

10/31/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

09/658,731

Applicant(s)

JOLMA ET AL.

Examiner

Sharad Rampuria

Art Unit

2617

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 August 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-9 and 11-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-9 and 11-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

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DETAILED ACTION

I. The Art Unit location of this application in the USPTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Art Unit 2617.

Disposition of the claims

II. The current office-action is in response to the amendment filed on 08/20/2007.

Accordingly, Claims 3, 10, are canceled, thus, Claims 1-2, 4-9, 11-22 are pending for further examination as follows:

Claim Rejections - 35 USC § 103

III. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2, 4-9, 11-17, 19, 21, are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin et al. (US 5831976) and Iseyama (US 5787346) further in view of Amitay (US 5371780).

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Regarding claim 1, Lin disclosed A method comprising: determining, for each base station of a plurality of base stations capable of communicating with at least one mobile station via any of a group of slots in a communication system (Col.5; 14-58)

Lin fails to disclose predetermining, for each base station, a classification for each channel according to the probability of interference at the channel with other base stations of the plurality of base stations; assigning as owned by said each base station and as avoided by said other base stations a channel in which said other base stations interfere with said each base station; assigning as owned by said other base stations and as avoided by said each base station remaining channels in which said other base stations interfere with said each base station; and assigning as shared by said each base station and said other base station channels in which said other base stations interfere with said each base station if used simultaneously with said each base station and which are not assigned as owned by either. However, Iseyama teaches in an analogous art, that predetermining, for each base station, a classification for each channel according to the probability of interference at the channel with other base stations of the plurality of base stations. (Col.7; 53-Col.8; 2) assigning as owned by said each base station and as avoided by said other base stations a channel in which said other base stations interfere with said each base station; (Col.7; 53-Col.8; 2) assigning as owned by said other base stations and as avoided by said each base station remaining channels in which said other base stations interfere with said each base station; (Col.7; 53-Col.8; 2) and assigning as shared by said each base station and said other base station channels in which said other base stations interfere with said each base station if used simultaneously with said each base station and which are not assigned as owned by either. (e.g. the radio base station control unit 18 refers to the management table 18a and checks

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to determine (a) whether the frequency F2 currently being used by the mobile station 11 is a shared assigned frequency and (b) whether this frequency has been assigned to another mobile station in another time slot; Col.7; 53-Col.8; 2). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the above combination including predetermining, for each base station, a classification for each channel according to the probability of interference at the channel with other base stations of the plurality of base stations; assigning as owned by said each base station and as avoided by said other base stations a channel in which said other base stations interfere with said each base station; assigning as owned by said other base stations and as avoided by said each base station remaining channels in which said other base stations interfere with said each base station; and assigning as shared by said each base station and said other base station channels in which said other base stations interfere with said each base station if used simultaneously with said each base station and which are not assigned as owned by either in order to providing a radio channel assignment method in a TDMA-type mobile telecommunication system having a plurality of radio base stations to which common radio frequencies have been assigned, and a base-station control unit for controlling each of the radio base stations, wherein radio frequencies are shared with radio base stations, each radio frequency is assigned as a radio channel, on a per time-slot basis, to a mobile station, and a radio channel is specified by the radio frequency and the time-slot, characterized in that the base-station control unit: manages, with regard to each radio frequency, the number of a radio base station that is using this radio frequency, the number of a mobile station that is using this radio frequency in each time slot, and data indicating whether this radio frequency is a frequency that has been assigned for shared use with the radio base stations. (Col.5; 31-64)

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The above combination fails to disclose allocating on request a channel according to the determined classification and a desired quality class of transmission. However, Amitay teaches in an analogous art, that allocating on request a channel according to the determined classification and a desired quality class of transmission. (e.g. determined classification and a desired quality class; Abstract, Col.8; 58-67) Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the above combination including allocating on request a channel according to the determined classification and a desired quality class of transmission in order to provide communications resource assignment in a wireless telecommunications system.

Regarding claim 2, Lin disclosed The method of claim 1, wherein each said channel is a time slot. (Col.6; 26-37)

Regarding claim 4, Lin disclosed The method of claim 1, wherein: the communication system further includes a controller (112; Fig.2) connected to each base station; said predetermination for each base station is reported to the controller; and said allocating is performed in the controller. (Col.5; 14-25)

Regarding claim 5, Lin disclosed The method of claim 3, wherein: the communication system further includes a controller (112; Fig.2) connected to each base station; said predetermination for each base station is reported to the controller; said allocating is performed

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in the controller; and the controller maintains an indication of which channels are currently allocated for each base station. (Col.5; 14-25).

Regarding claim 6, Lin disclosed The method of claim 5, wherein: if neither an owned channel nor a shared channel of a first base station is available for a requested communication, the controller determines whether any avoided channel of the first base station is not in use by a second base station owning that channel, and if so, that channel is allocated for the requested communication. (Col.7; 7-24)

Regarding claim 7, Lin disclosed The method of claim 2 wherein the step of allocating is further according to location of a mobile station to be communicated with. (Col.6; 15-25)

Claims 8, 15 are the **apparatus** claims, corresponding to **method** claim 1 respectively, and rejected under the same rational set forth in connection with the rejection of claim 1 respectively, above.

Regarding claim 9, Lin disclosed The apparatus of claim 8, wherein each said channel is a time slot. (Col.6; 26-37)

Regarding claim 11, Lin disclosed The apparatus of claim 8, further comprising a controller (112; Fig.2) connected to each base station and configured to: receive said

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predetermination for each base station is reported to the controller; and to be a portion of said logic unit for performing said allocating. (Col.5; 14-25).

Regarding claim 12, Lin disclosed The apparatus of claim 11, wherein the controller (112; Fig.2) maintains an indication of which channels are currently allocated for each base station. (Col.5; 14-25).

Regarding claim 13, Lin disclosed The apparatus of claim 12, wherein: if neither an owned channel nor a shared channel of a first base station is available for a requested communication, the controller is configured to determine whether any avoided channel of the first base station is not in use by a second base station owning that channel, and if so, to allocate that channel for the requested communication. (Col.7; 7-24)

Regarding claim 14, Lin disclosed The apparatus of claim 9, wherein the logic unit is configured to allocate a channel further according to location of a mobile station to be communicated with. (Col.6; 15-25)

Regarding claim 16, Lin disclosed The apparatus of claim 15, where said determining means and said allocating means comprise part of a controller that is connected to said base stations. (112; Fig.1)

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As per claims 17, 19, 21, The above combination teaches all the particulars of the claim except where the desired quality class of transmission comprises a desired quality of service class. However, Amitay teaches in an analogous art, that The method of claims 1, 8, 15, where the desired quality class of transmission comprises a desired quality of service class. (e.g. determined classification and a desired quality class; Abstract, Col.8; 58-67)

Claims 18, 20, 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin et al. (US 5831976) and Iseyama (US 5787346) and Amitay (US 5371780) and further in view of Chuah (US 6469991).

As per claims 18, 20, 22, The above combination teaches all the particulars of the claim except where the desired quality class of transmission is considered for real-time transmission to be a high quality class, and for packet data transmission to be a lower quality class. However, Chuah teaches in an analogous art, that The method of claims 1, 8, 15, where the desired quality class of transmission is considered for real-time transmission to be a high quality class, and for packet data transmission to be a lower quality class. (e.g. a high quality class, and for packet data transmission to be a lower quality class; Abstract, Col.18; 31-53) Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the above combination including where the desired quality class of transmission is considered for real-time transmission to be a high quality class, and for packet data transmission to be a lower quality class in order to provide a method for managing queue in time and frequency division half-and

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full-duplex multiple access wireless communications networks employing the "on-demand multiple access fair queuing" system.

Response to Amendments & Arguments

IV. Applicant's arguments with respect to claims 1-2, 4-9, 11-22 has been fully considered but is moot in view of the new ground(s) of rejection.

Conclusion

V. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sharad Rampuria whose telephone number is (571) 272-7870. The examiner can normally be reached on M-F. (8:30-5 EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, George Eng can be reached on (571) 272-7495. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000 or

EBC@uspto.gov.

/Sharad Rampuria/
Patent Examiner
Art Unit 2617